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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,323	09/23/2003	Masahiro Ito	03500.017580	1640

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EXAMINER

BRASE, SANDRA L

ART UNIT	PAPER NUMBER
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2852

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,323

Applicant(s)

ITO, MASAHIRO

Examiner

Sandra L. Brase

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/15/04 & 11/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 8g. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because in figure 6, "(dot/mm²)" should be "(mm²/dot)". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement

Art Unit: 2852

sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The disclosure is objected to because of the following informalities.

On line 1 of page 30, "83" should be "8e".

On line 4 of page 40, "(dot/mm²)" should be changed to "(mm²/dot)".

On line 2 of page 45, "(dot/mm²)" should be changed to "(mm²/dot)".

On lines 6 and 19 of page 45, "(number//mm²)" should be changed to "(number/mm²)".

On line 7 of page 54, "if" should be deleted.

On line 9 of page 54, insert "and" after "(mm²/dot),".

Appropriate correction is required.

Claim Objections

5. Claims 1-14 are objected to because of the following informalities. Appropriate correction is required.

On line 19 of claim 1, "if" should be deleted.

Art Unit: 2852

On line 20 of claim 1, "and" should be deleted after "(number/mm²)".

On line 21, "and" should be inserted after "(mm²/dot)".

On line 5 of claim 12, "if" should be deleted.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1, 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381).

8. Suzuki (...714) discloses an electrophotographic apparatus comprising: a photosensitive member (6); an exposing means (8) for exposing the photosensitive member in accordance with a digital image signal in order to form an electrostatic image on the photosensitive member (col. 1, lines 26-29; col. 3, lines 52-60; and col. 5, lines 6-10); developing means (9) for forming a developer image on the photosensitive member by developing the electrostatic image by a developer (col. 5, lines 10-15); and cleaning means (32) for cleaning a residual developer from the photosensitive member after the developer image is transferred to an image receiving member (col. 5, lines 55-57), which comprises a cleaning brush brought into contact with the photosensitive member, wherein a brush density of the cleaning brush is D (number/mm²), an area of a pixel is S (mm²/dot), and $D \times S$ is contained within the range of 0.06 and 200 (col. 3,

Art Unit: 2852

lines 52-54; and col. 6, lines 40-43). The thickness of a fiber of the cleaning brush is 20 μm (col. 6, lines 40-44). The brush density D is 11220/in², which is 17.39/mm² (col. 6, lines 40-43). The exact weaving degree of the cleaning brush can be determined through routine experimentation. However, Suzuki (...714) does not disclose the claimed layers of the photosensitive member. Masaki et al. (...381) disclose a photosensitive member including a surface layer formed on a surface thereof, and a photosensitive layer, where the sum of a thickness of the photosensitive layer and a thickness of the surface layer is 10.01 to 45 μm (col. 7, lines 29-33), which contain values that lie in the claimed range. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the claimed layers of the photosensitive member, as disclosed by Masaki et al. (...381) since it is well known in the art to use such layers for a photosensitive member for imaging.

9. Claims 2, 7, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) as applied to claim 1 above, and further in view of Kosuge (US 6,775,511).

10. Suzuki (...714) in view of Masaki et al. (...381) disclose the features mentioned previously, but do not disclose the cleaning means including a cleaning blade with the cleaning brush, the exposing means using a laser beam, and the cleaning brush supplying a lubricant. Kosuge (...511) discloses a cleaning device including a cleaning blade (9) for removing residual developer from a photosensitive member on a downstream side of a cleaning brush (8) in a moving direction of the photosensitive member (figure 1). The cleaning brush supplies a lubricant to the photosensitive member (col. 6, lines 7-14), where the size of the lubricant

Art Unit: 2852

particles used and the composition of the lubricant can be determined through routine experimentation. An exposing means irradiates the photosensitive member with a laser beam to form a latent image (col. 3, lines 36-38). It would have been obvious to one of ordinary skill in the art at the time of the invention to have a cleaning blade with the cleaning brush in the cleaning device, as disclosed by Kosuge (...511), so as to aid the cleaning brush in the removal of residual material on the photosensitive member. It would have also been obvious to one of ordinary skill in the art at the time of the invention to have the cleaning brush apply lubricant, as disclosed by Kosuge (...511), since using the cleaning brush as an applicator for lubricant saves space in the image forming apparatus. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the exposure means use a laser beam, as disclosed by Kosuge (...511) since it is well known in the art to use a laser beam as a type of light to expose the photosensitive member to form a latent image.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) as applied to claim 1 above, and further in view of Maruyama et al. (US 5,391,449).

12. Suzuki (...714) in view of Masaki et al. (...381) disclose the features mentioned previously, but do not disclose the surface layer made of the claimed material. Maruyama et al. disclose a surface layer for a photosensitive member including a compound obtained by polymerizing and curing a compound which has an unsaturated polymeric functional group (abstract; and col. 2, lines 15-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the claimed compound as the surface layer of the

Art Unit: 2852

photosensitive member, as disclosed by Maruyama et al. (...449), since a such a surface layer shows good durability against wearing.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) as applied to claim 1 above, and further in view of Takei et al. (US 5,624,776).

14. Suzuki (...714) in view of Masaki et al. (...381) disclose the features mentioned previously, but do not disclose the photosensitive layer made of the claimed material. Takei et al. (...776) disclose a photosensitive layer comprising a non-single crystal material in which a silicon atom is a matrix (abstract; and col. 12, lines 54-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the claimed material make up the photosensitive layer, as disclosed by Takei et al. (...776), since such a material is well known in the art to form a photosensitive layer for imaging.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) as applied to claim 1 above, and further in view of Yamazaki et al. (US 5,659,857).

16. Suzuki (...714) in view of Masaki et al. (...381) disclose the features mentioned previously, but do not disclose the claimed type of toner. Yamazaki et al. (...857) disclose an image forming apparatus and method including a toner with a shape factor SF-1 of 100-150 and a shape factor SF-2 of 100-140 (abstract; and col. 4, lines 12-59), where the toner has an average particle size of 4-8 μm (col. 5, lines 29-30). It would have been obvious to one of ordinary skill

Art Unit: 2852

in the art at the time of the invention to have the claimed type of toner, as disclosed by Yamazaki et al. (...857), since such a toner has good transfer efficiency.

17. Claim 12/1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) as applied to claim 1 above, and further in view of Ohta et al. (US 5,625,443).

18. Suzuki (...714) in view of Masaki et al. (...381) disclose the features mentioned previously, but do not disclose the claimed scraper member. Ohta et al. (...443) disclose a cleaning device including a scraper member (7) for scraping off the developer from a cleaning brush (4), where the incursion amount of the cleaning brush with respect to an image bearer is greater than the incursion amount of the cleaning brush with respect to the scraper member (figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the claimed scraper member, as disclosed by Ohta et al. (...443), so as to remove developer from the cleaning brush.

19. Claim 12/11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,436,714) in view of Masaki et al. (US 5,138,381) and Kosuge (US 6,775,511) as applied to claim 11 above, and further in view of Ohta et al. (US 5,625,443).

20. Suzuki (...714) in view of Masaki et al. (...381) and Kosuge (...511) disclose the features mentioned previously, but do not disclose the claimed scraper member. Ohta et al. (...443) disclose a cleaning device including a scraper member (7) for scraping off the developer from a cleaning brush (4), where the incursion amount of the cleaning brush with respect to an

Art Unit: 2852

image bearer is greater than the incursion amount of the cleaning brush with respect to the scraper member (figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the claimed scraper member, as disclosed by Ohta et al. (...443), so as to remove developer from the cleaning brush.

Prior Art

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swift (US 4,741,942) and Swift (US 5,689,791) disclose a cleaning brush for cleaning the surface of a photosensitive member.

Sawayama (US 6,415,129) disclose a cleaning device for cleaning the surface of a photosensitive member including a cleaning brush and cleaning blade.

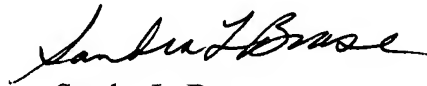
Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra L. Brase whose telephone number is (571) 272-2131. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur T. Grimley, can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2852

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sandra L. Brase
Primary Examiner
Art Unit 2852

November 10, 2004